

# **APPLICATION FOR UNITED STATES PATENT**

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**Invention: SPARRING KNIFE WITH MARKING SYSTEM**

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## SPARRING KNIFE WITH MARKING SYSTEM

### CROSS-REFERENCE TO RELATED APPLICATIONS

The present application derives priority from U.S. Provisional Patent Application 60/439,692 for “SPARRING KNIFE”, filed January 13, 2003.

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### BACKGROUND OF THE INVENTION

#### 1. Field of the invention

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The present invention relates to sparring implements and, in particular, to a martial arts training knife with soft chalk-retaining and wicking members seated in a channel along the edge of the blade and communicating with a reservoir of marking material, for imparting markings to one's opponent.

#### 2. Description of the Background

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Self defense and combat training are more beneficial activities when they are realistic. Consequently, it is helpful in teaching or practicing self defense training for hand-to-hand knife combat to use a simulated sharp edged instrument. Many law enforcement and self defense schools use rubber knives or wooden sticks. However, such devices leave no indication of where a strike was made, and this deprives the participant of an essential element of positive and/or negative feedback. There is a clear need for simulated weapons that are capable of marking the location of a strike, and there have been a number of prior efforts to provide this capability.

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For example, United States Patent 5,174,756 to Taylor issued December 29, 1992 discloses a simulated knife with an ink absorbing edge affixable to the edge of the blade, a handle attached to the

5 blade, an ink reserve, means for allowing ink to flow from the ink reserve means to the ink absorbing edge thereby allowing the ink absorbing edge to contain ink therein wherein the ink absorbing edge of the blade marks an area with ink upon contact therewith.

United States Patent 5,120,261 to Dietzman issued June 9, 1992 shows a toy nunchuk with an interior reservoir and a valve for imparting fluid upon striking an opponent.

10 While the foregoing patents are generally directed to sparring indicators, they tend to suggest the use of ink flowing arbitrarily from an ink reservoir in the handle outward along felt dispensing elements. Thin liquid ink, which can freely flow through felt elements, is a problem inasmuch as it is messy and inconsistent. A thinner ink results in spraying, especially with the velocities attained by the tip of the knife in the heat of vigorous combat. A thicker ink often fails to mark a strike, especially a  
15 low-velocity strike such as a frontal jab. Moreover, ink indiscriminately released from an internal reservoir tends to create an imbalance in the knife, and this detracts from the training experience. There simply is no known way of effectually, smoothly and reliably applying ink under sparring circumstances.

There remains a need for a sparring implement with a more reliable and consistent form of indicator that is also washable and economical.

### **SUMMARY OF THE INVENTION**

20 It is, therefore, an object of the present invention to provide an improved martial arts training knife with one or more soft marking-compound-retaining and wicking members seated in a channel along the edge of the blade for indicating strikes by imparting chalk or ink markings to one's opponent.

5           It is a specific object to provide a more consistent applicator that does not rely on a relatively large internal reservoir, and which therefore does not create an imbalance in the knife that detracts from the training experience.

          It is another object to provide a more consistent applicator that releases ink on demand, and which therefore does not create an over or under abundance of released ink.

10           It is a general object to provide a sparring implement that effectually, smoothly and reliably applies a marking substance under all sparring circumstances.

          It is still another object to provide a sparring implement that is economical to manufacture and sell.

          It is another object to provide an alternative embodiment for retrofit to an existing martial arts training knife that includes soft chalk-retaining members adhered to the edge of the existing knife blade  
15           for indicating strikes by imparting chalk markings to one's opponent.

          The foregoing and other objects are accomplished by providing a simulated sharp edged sparring weapon having a simulated blade with a channel ingrained along one or both edges. A marking-compound retaining and wicking member is seated within each channel. Each marking-  
20           compound retaining and wicking member preferably comprises a strip of cloth rolled about a foam tubule, and seat in the channel along the edge of the blade. In one embodiment, the handle, which contains a small reservoir and a pressurizer for urging marking compound (here ink) internally into the marking-compound retaining and wicking member, is attached to the blade. The pressurizer may be the handle itself, which when squeezed impregnates the marking-compound retaining and wicking

5 member with ink, whereupon it marks a surface with which it comes in contact. The ink is preferably of relatively thick consistency so that there is no perceptible sensation of moving weight within the knife handle, during use. Alternatively, chalk may be applied externally to the marking-compound retaining and wicking member(s). In either case, chalk or ink absorbed into the marking-compound retaining and wicking member will adhere thereto until it comes into contact with another surface, whereupon it  
10 marks said surface. When the chalk/ink is depleted after sparring, another application refreshes the marking-compound retaining member(s) and the knife is ready for more sparring.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

Other objects, features, and advantages of the present invention will become more apparent  
15 from the following detailed description of the preferred embodiment and certain modifications thereof when taken together with the accompanying drawings in which:

FIG. 1 is a longitudinal section perspective drawing of a martial arts sparring knife according to the preferred embodiment of the present invention.

FIG. 2 is a perspective drawing of the martial arts sparring knife as in Fig. 1, showing  
20 compressed state of the handle, in dotted lines.

FIG. 3 is an exploded perspective view of another embodiment of the present invention.

FIG. 4 is a perspective drawing of a martial arts sparring knife 200 according to an alternate embodiment of the present invention which uses chalk.

FIG. 5 is an exploded perspective drawing of the martial arts sparring knife 200 as in Fig. 4.

FIG. 6 is a perspective view of chalk retaining member 206.

### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

FIG. 1 is a perspective longitudinal section drawing of a martial arts sparring knife 2 according to the present invention which generally comprises a handle 14 connected to a simulated blade 8. The knife 2 incorporates soft marking-compound-retaining and wicking members 6 seated in a channel 4 along one or both edges of the simulated blade 8 in order to impart markings to one's opponent to indicate a strike. A reservoir 10 occupies the interior portion of the handle 14 of knife 2, and the reservoir 10 is bounded at the distal end by a screw-on end cap 16. One or more conduits 12 are formed near the edges of the simulated blade 8, conduits 12 running peripherally along the blade 8 into fluid communication with reservoir 10 at one end, to the soft marking-compound-retaining and wicking material 6 at the other end. The configuration as shown in FIG. 1 allows for a more realistic simulated weapon. It looks real, feels real, and it handles well due to its even balance.

The blade 8 is contoured to simulate virtually any type of sharp-edged weapon including the illustrated double-edged knife. Single edged knives, sabers, machetes, hatchets and butterfly knives are also possible. Preferably, the blade 8 is stiff but slightly flexible so as to avoid injury when a strike is made during sparring. A flexible rubber or soft plastic will suffice.

FIG. 2 is a perspective drawing of the martial arts sparring knife 2 as in Fig. 1. The illustrated blade 8 is formed with a continuous channel 4 running along the edge. The channel 4 is uniformly shaped so as to be capable of holding marking-compound retaining and wicking members 6. The approximate depth of the channel 4 is 1-6 mm, as indicated by a dotted line around the perimeter of the

5 blade 8, shown in FIG. 2. The soft marking-compound-retaining and wicking material 6 is formed of felt or of cloth wrapped around a foam tubule and is secured by glue or other adhesive. Each marking-compound-retaining and wicking member 6 is preferably formed of cloth with a higher wool content that's thicker, woven from worsted yarn, and nap-free to eliminate pilling or shedding for longer life. Since the marking-compound-retaining and wicking members 6 are glued, they can be removed from  
10 the device and replaced if the need arises. The channel also serves to retain the soft marking-compound-retaining and wicking material in place on the edge of the blade 8.

A plurality of marking-compound-retaining and wicking members 6 and a quantity of ink (not shown) and/or chalk is provided in kit form along with the knife 2. The ink is preferably a viscous washable ink. Conventional calcium carbonate chalk in block form is used, preferably dyed to yield a  
15 high-visibility color.

As shown in FIG. 2, the blade 8 together with the marking-compound-retaining and wicking member(s) 6, is attached to the handle 14. The handle 14 may likewise be formed as a conventional knife handle but of flexible and resilient material, such as rubber or plastic. The reservoir 10 (see FIG. 1) is accessed by removal of the end cap 16 attached to the distal end of the handle 14. The end cap  
20 16 is threaded and mated with a corresponding set of threads provided on the distal end of the handle 14, as shown in FIG. 1. The end cap 16 is screwed tight, to seal the reservoir 10, in watertight fashion. The handle 14 is opened, the reservoir 10 filled with ink, and the handle 14 closed with the end cap 16. The user may squeeze the handle 14 to compress the reservoir 10, as indicated by the dotted lines, in FIG. 2, to urge ink through the conduit 12 (not shown in Fig. 2) and onto the soft marking-compound-retaining and wicking member 6. The user may also squeeze the blade 8 to release the ink to the  
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5 marking-compound-retaining and wicking member 6. In this way, the user controls the flow of ink from the reservoir 10 to the soft marking-compound-retaining and wicking member 6.

The sparring knife is used with chalk to mark the strike, rather than ink. In that case, chalk is generally applied to the marking-compound-retaining and wicking member 6 and there is no need to open the handle 14 to fill the reservoir 10 with ink.

10 FIG. 3 shows an alternate embodiment of the invention having a stiff handle 141, which, like handle 14, has an ink reservoir. A modified end cap 161 with a through bore attaches to the stiff handle 141 in the same manner as the end cap 16 attaches to the handle 14. A plunger 18 is formed with a shaft 20 having a first end and a second end. The shaft 20 is slideably engaged within the through bore of the modified cap 161, such that the first end extends into the reservoir 10 and the  
15 second end extends outward from the modified cap 161. A plate 22 is attached to the first end of the shaft 20 and a push pad 24 is attached to the second end of the shaft 20. When the reservoir 10 is supplied with ink and the modified cap 161 is screwed in place on the stiff handle 141, the plate 22 contacts the supply of ink and a relatively large portion of the shaft 20 protrudes from the modified cap 161. The user may press the push pad 24 to advance the plate 22 against the supply of ink; thereby  
20 urging the ink from the reservoir 10, through the conduit 12 and onto the marking-compound-retaining and wicking member 6. It will be appreciated that other means may be used for applying pressure to the ink supply. Air pressure from a pump or other source is a suitable means for applying pressure.

The embodiments of the invention shown in FIG's. 1-3 may be recharged with ink by removing the end cap 16 or the modified end cap 161, and refilling the reservoir 10. The improved  
25 means of urging the ink onto the marking-compound-retaining and wicking member 6 allows the use of



5 ink having a relatively thick consistency. The thicker ink will not readily splatter nor slosh around within the reservoir 10 as a thinner ink is prone to do.

As an alternative, mock combatants may wish to mark their strikes with chalk in lieu of ink.

FIG. 4 is a perspective drawing of a martial arts sparring knife 200 according to an alternate embodiment of the present invention which incorporates soft chalk-retaining member(s) 206 adhered  
10 along one or both edges of a simulated blade 208 in order to impart chalk markings to one's opponent to indicate a strike. The configuration as shown in FIG. 4 also allows for a realistic simulated weapon.

FIG. 5 is an exploded perspective drawing of the martial arts sparring knife 200 as in Fig. 4. The illustrated blade 208 is formed with two edges. The edges are uniformly shaped so as to be capable of holding chalk retaining member 206. Chalk retaining member 206 is formed of suitable  
15 chalk adhering material adhered along both edges.

Along with the knife 200, a plurality of chalk markers 210 are provided in kit form. Conventional calcium carbonate chalk in block form is used, preferably dyed to yield a high-visibility color.

As shown in FIG. 6, at least one chalk retaining member 206 is provided (two can be used for  
20 opposing edges). Chalk retaining member(s) 206 are preferably formed of a rolled strip of cloth 212 with a higher wool content that's thicker, woven from worsted yarn. Moleskin cloth is preferred. Moleskin is a heavy sateen weave fabric made on a 5-end or an 8-end satin construction with the use of heavy, soft-spun filling in order to provide for a good napped surface effect. The fabric is woven under tension to produce a tight weave: to 280 threads per inch in the warp. The weave also produces  
25 excellent chalk retention characteristics. Carded cotton yarn is used and the fabric is napped and

5 sheared to provide what is actually a suede-effect. This cotton moleskin fabric is extremely durable, and the sheared pile actually protects the surface from abrasion and wear.

The cloth strip 212 is equipped with a self-adhesive temporary glue backing 213 with removable paper strip 214 so that it can be adhered along the edge of the blade 208 (on a marginal area of the blade edge). The temporary glue allows strip 212 to be removed from the device and  
10 replaced if need be.

The blade 208 together with the chalk retaining member(s) 206, is attached to a handle 218. The handle 218 may likewise be formed as a conventional knife handle formed of metal or the like, and may be softer material such as plastic or light wood.

To be capable of marking a strike, the paper backing is removed and a strip of the  
15 moleskin/adhesive member 206 is laid out on a table. The tip of the knife is pressed to the center as shown in FIG. 5, and the moleskin member 206 is draped up over the edges for adhesion thereto. A chalk marker is applied up and down the sides of the chalk retaining member 206 until it is substantially saturated with it. The knife 200 is then ready for use. The knife 200 is used for sparring and it effectually, smoothly and reliably applies the chalk under all sparring circumstances. The chalk is not  
20 messy, it is dry and does not absorb, leaves no stains, and it is easy to clean. The chalk does not loosen even at the higher velocities attained by the tip of the knife. Moreover, the chalk is highly consistent and never fails to mark the strike, no matter how soft the strike or how slow it is (e.g., with frontal jabs). Most importantly, the knife 200 remains perfectly balanced as there is no liquid in a reservoir to slosh around.

25 One application of chalk to chalk retaining members 206 as described will last for a normal (1

5 to 20 strike) bout. When the chalk is depleted, another application refreshes the chalk retaining members 206 and the knife, if not the user, is ready for more.

Though the above-described chalk retaining members 206 are best suited for use with chalk, a variety of other marking compounds may be used (e.g., lipstick, clown makeup, etc.), in each case being applied up and down the sides of the chalk retaining member 206 until it is substantially saturated  
10 with it.

Having now fully set forth the preferred embodiments and certain modifications of the concept underlying the present invention, various other embodiments as well as certain variations and modifications of the embodiments herein shown and described will obviously occur to those skilled in the art upon becoming familiar with said underlying concept. It is to be understood, therefore, that the  
15 invention may be practiced otherwise than as specifically set forth in the appended claims.